

DOCUMENT RESUME

ED 173 946

ES 011 964

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 TITLE Barnard's Effectiveness and Efficiency Applied to a Leader Style Model.
 PUB DATE May 79
 NOTE 31p.
 EDRS PRICE MF01/PC02 Plus Postage.
 DESCRIPTORS Factor Analysis; *Leadership Styles; *Measurement Instruments; Questionnaires; *Research Tools; Secondary Education
 IDENTIFIERS *Organizational Climate Survey

ABSTRACT

Using the work of Chester I. Barnard as a theoretical basis, the author developed a model to illustrate 36 combinations of leader styles. Six levels of efficiency (orientation to human needs) are plotted against six levels of effectiveness (task orientation) to form an Administrator Grid. The location of leaders within this grid is determined by plotting the results obtained from a questionnaire, the Organizational Climate Survey, administered to the leaders' subordinates. This model was tested in a survey of 455 teachers from 41 randomly selected high schools in Iowa and Missouri and found to be reliable. Further testing of the instrument used to gather data for the technique is required before the model can be used to validate or invalidate Barnard's claim that leader styles are significant factors in organizational success. (Author/PGD)

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BARNARD'S EFFECTIVENESS AND EFFICIENCY
APPLIED TO A LEADER STYLE MODEL

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May, 1979

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BARNARD'S EFFECTIVENESS AND EFFICIENCY APPLIED TO A LEADER STYLE MODEL

The impact that a leader has upon the people within an organization should not be underestimated. By definition, a leader is a causal factor; a leader directs, guides, and influences the behavior of others in an effort to achieve the organization's purpose. Contemporary theorists seemingly have abandoned the study of leader style as a causal factor in favor of situational theory¹ and/or contingency theory² of administration.

Each of these theories have made significant contributions to leader studies, but the position taken here is that the success of these theories has impeded research progress in leader studies by focusing attention on the situation rather than the leader. For reasons not clearly understood, the two theories have caused macro-theoreticians to concede too quickly to evidence that the situation confronted by an administrator is the controlling force in organization success.

In an effort to reopen the case for leader style studies and perhaps offer a challenge, a theoretical model for research purposes has been developed to illustrate 36 combinations of leader styles. In addition, a questionnaire has been developed to accompany the model. The questionnaire was designed to measure leader style through the perspective of subordinates as first proposed by Barnard³. The purpose of the questionnaire was to provide an instrument suitable for collecting base data on the Barnard theory and for testing subsequent theoretical premises.

THE MODEL: THE ADMINISTRATIVE GRID

The Administrative Grid (Figure 1) is a 36 cell matrix designed for plot-

Insert Figure 1 Here

ting scores from normalized orthogonal data. The parameters or dimensions of the grid have been divided into standard deviations, so the "z" scores from the leader's "task" and "people" orientations can be illustrated. Perpendicular lines from the points of the obtained scores can be drawn across the grid with the intersect points indicating the measure for the leader's style.

A value for each cell can be established by computing algebraic sums for the scores on the perimeter of the grid. The diagonal line extending from the upper left corner to the lower right corner separates cells with positive values from those with negative values. The cell value reflects a measure of achievement rising from the lower left to the upper right cell. The upper right cell is the "ideal" position since that particular cell reflects measures when the administrator is optimizing on both dimensions. The cell value for that cell is a +6.

The mid-point on each dimension on the perimeter of the grid is a mean score. If the mean score lines were darkened across the grid, a quadrant system similar to Halpin's⁴ could be distinguished. However, since the diagonal achievement line separated theoretical positive value cells from negative value cells, the mean lines were darkened only on that portion of the line above the achievement line. The resulting upper right quadrant is the only position on the grid which reflects above average achievement on both the task and people dimensions.

Two triangles are formed by the diagonal achievement line and the upper

right quadrant. The triangles are danger zones. The administrator whose style is located in one of the two areas is above average on only one of the dimensions but is still in the positive cell value area. The theoretical model is built upon the assumption that long run leader success is contingent upon achieving high scores on both the task and people measures.

THEORETICAL PREMISE

The basic theoretical premises of the model are from those developed by Barnard. Barnard used the terms effectiveness and efficiency with special definitions.⁵ His definitions make a great deal of sense even when subsequent psychological and leader theory are taken into account. In defining effectiveness, Barnard wrote, "effectiveness . . . is the accomplishment of the recognized objectives of cooperative action. The degree of accomplishment indicates the degree of effectiveness."⁶ In defining efficiency, Barnard wrote, "efficiency relates to the satisfaction of the individual motives. The efficiency of a cooperative system is the resultant of the efficiencies of the individuals furnishing the constituent efforts, that is, as viewed by them."⁷

In terms of the grid, effectiveness is the measure of task accomplishment, and efficiency is the measure of satisfactions of personal human needs. A competent leader would be one able to lead the group in accomplishing objectives while satisfying the needs of subordinates.

For Barnard, group accomplishment is dependent to a large extent upon the attitudes of those working in the organization. These attitudes are shaped by a personal view of reality. Effectiveness and efficiency, then,

are simply relative terms reflecting a state of mind of group members. Leaders are held accountable for these attitudes since the leaders are responsible for the group; the manner in which the leader shapes the attitudes of subordinates toward the work environment is what is termed, "leader style." The Barnard thesis plus effectiveness and efficiency measures became the basis for a questionnaire, Organizational Climate Survey (OCS), developed to provide opportunity for subordinates to reveal their attitudes. The results obtained from the questionnaire were to be plotted on the Administrative Grid as a reflection of a leader's style.

THE QUESTIONNAIRE

The Organizational Climate Survey (OCS) was developed to include 10 major organizational constructs either cited frequently by contemporary theorists as important factors in leadership or identified as important contributors to leader effectiveness and subordinate efficiency. Figure 2 provides a list of

Insert Figure 2 Here

the 10 constructs, a working definition for each, the names of theorists associated with each, and sample items for the various constructs.

Since the theoretical model requires measure on only two major dimensions, task and people orientation, the constructs used on the instrument were generally limited to only those identified as contributing to the Barnard thesis. As indicated in Figure 2, four constructs from the 10 were believed to be associated with the task dimension and four with the people dimension. The applicability of two constructs to the dimensions were uncertain and were believed to be a combination of each. The latter, those believed to be a combination of task and people measures, were constructs which appeared to measure leader-subordinate interaction rather than effectiveness or efficiency per se.

Figure 2

DIMENSIONS, FACTORS, DEFINITIONS AND SAMPLE ITEMS FROM THE ORGANIZATIONAL CLIMATE SURVEY*

Task Dimension Factors	Definitions and Sample Items
Leader Goal Orientation (LGO)	LGO was identified as a scale to measure the degree to which the leader emphasizes goal accomplishment and initiates structure. Halpin.^a a. The leader strives hard to accomplish organizational objectives. b. The leader derives satisfaction from goal accomplishment.
Group Goal Orientation (GGO)	GGO was identified as a scale to measure the degree of mature behavior group members exhibit toward reaching group goals. Hersey-Blanchard.^b a. Group members strive hard to accomplish the goals of the organization. b. Group members cooperate in achieving organizational goals.
Training and Development (TD)	TD was identified as a scale to measure the leader's concern with TD of subordinates. Gellerman.^c a. The leader encourages subordinates to consider additional training. b. Training and development of subordinates is a priority item with the leader.
Salary and Benefits (SB)	SB was identified as a scale to measure the respondent's satisfaction with the salary and benefit package. Herzberg.^d a. I feel the salary I receive is comparable to what others make in similar organizations. b. The salary I receive is consistent with what I expected when I entered the career field that I did.
People Dimension Factors	
Self-Concept (SC)	SC was identified as a scale to measure personal satisfactions with work and career choice. Super.^e a. My work challenges my creativeness b. My work provides me a sense of accomplishment.

Self-Image (SI)

SI was identified as a scale to measure the view the respondent has of himself as reflected in the feedback from others. Combs.^f

- a. I am respected by co-workers.
- b. I have the respect of subordinates.

Personal Freedom (PF)

PF was identified as a scale to measure the degree of freedom the respondent believes he has to direct or influence the work situation. Argyris.^g

- a. I am permitted to use a high degree of personal initiative on my job.
- b. I have, to a large degree, a free hand in determining my work objectives.

Opportunity for Advancement (AO)

AO was identified as a scale to measure the respondent's assessment of promotion patterns. Herzberg.^h

- a. Opportunity for advancement depends on ability to demonstrate outstanding proficiency in a position.
- b. Only the outstanding people in the organization are promoted.

Leader-Subordinate Interaction Factors

Leadership (LDR)

LDR was identified as a scale to measure the level of satisfaction with leader-subordinate interaction. Halpin.ⁱ

- a. The leader displays a cooperative attitude toward subordinates.
- b. The leader makes an effort to be fair to subordinates.

Supervision (SUP)

SUP was identified as a scale to measure the leader's supervisory strategies for improving the performance of subordinates. Herzberg.^j

- a. The leader provides subordinates with specific direction for improving performance.
 - b. The leader clearly outlines the procedures necessary for subordinates to improve performance.
-

*Notes on following page

Notes on Instrument

- a. LGO is similar to Initiating Structure. Andrew W. Halpin, Theory and Research in Administration, (New York: The MacMillan Co.), 1966.
- b. Paul Hersey and Kenneth Blanchard, Management of Organizational Behavior: Utilizing Human Resources, (Englewood Cliffs, N.J.: Prentice-Hill, Inc.), 1977, pp. 161-163.
- c. Saul W. Gellerman, The Management of Human Resources, (Hinsdale, Ill.: The Dryden Press), 1976, Chapter 6.
- d. Fredrick Herzberg, Work and the Nature of Man, (New York: World Publishing Co.), 1966, p. 74.
- e. Donald E. Super and Martin J. Bohn, Jr., Occupational Psychology, (Belmont, Cal.: Wadsworth Publishing Co. Inc.), 1970, pp. 147-150.
- f. Arthur W. Combs, "A Perceptual View of the Adequate Personality," in Perceiving, Behaving, Becoming: A New Focus for Education, (Washington D.C.: Association for Supervision and Curriculum Development, NEA), 1962, pp. 51-53.
- g. Chris Argyris, Personality and Organization: The Conflict Between System and the Individual, (New York: Harper & Row, Pub.), 1957, pp. 49-53.
- h. Herzberg, Ibid. p. 72-73.
- i. LDR is similar to Consideration. Halpin, Ibid.
- j. Herzberg, Ibid. p. 74.

Eight items with Likert type responses were created to measure each of the constructs. The items provided subjects a choice of six ascending responses ranging from "never" to "always." The items were created using symbolic-logic confirmatory factoring matrices developed by Coleman.⁸ The use of this procedure was to sharpen the focus of items used in the construct and to increase the probability of attaining a high correlation between the item and construct when subjected to confirmatory factor analysis.

Reliability

The reliability of the instrument was estimated in two ways. The first was through the use of Product Moment correlation with eight graduate students in a test-retest situation one week apart. The small N was used because most administrators head small groups. The second method was through the use of the Guttman split-half correlation with 455 secondary school teachers. Table 1 provides a list of the correlation ratios; the instrument had an estimated

Insert Table 1 Here

reliability coefficient of .85 on both computations.

Validity

Validity of the instrument will be discussed in terms of predictive, content, and construct validity since all, according to Nunnally,⁹ are important to instrument construction.

Predictive

If a model is to be of benefit, the instrument used to plot leader style must accurately represent what is being measured. For example, a leader whose

Table 1

Organizational Climate Survey Estimated Reliability

	Test-Retest	Split-Half
Leader Goal Orientation	.864	.8800
Group Goal Orientation	.835	.8358
Training and Development	.927	.8634
Salary and Benefits	.823	.8609
Self-Concept	.780	.7230
Self-Image	.839	.7592
Personal Freedom	.830	.8253
Opportunity for Advancement	.774	.8416
Leadership	.586	.8942
Supervision	.587	.9013
Instrument Scale Totals	.856	.8483

style is represented in a favorable position on the Grid must be a more successful leader than one represented in an unfavorable position. Additionally, as will be discussed later, some statistical procedure is necessary to predict the location of a leader's position by a method other than using the test items as the criteria for placement. These two considerations were not included in the study since the constructs were merely hypothesized.

Concurrent validity, likewise, could not be tested because a like test was not found. Leonard,¹⁰ however, has begun comparing the OCS to a modified version of the Leader Behavior Description Questionnaire¹¹ but results are incomplete at this time.

Content

The constructs included for use in the questionnaire were selected on the basis of a review of the literature and applicability to the Barnard thesis. After the constructs were defined, items were developed to measure the constructs by using the symbolic-logic matrices discussed previously.¹² The technique was used to raise the correlation ratio among items and to increase the probability of favorable loadings through factor analysis.

Harrington¹³ assessed the responses of 248 Iowa secondary teachers to determine differences in the perceptions of the teachers of their "real" and "preferred" environment. On every OCS item, the "preferred" score was higher than the "real" score. The Harrington data supported the hypothesis that the higher scores were the most desirable, at least in the perceptions of the high school teachers.

Construct

Since the purpose of the study was to assess the construct validity of a newly created instrument, the procedures became the focus of the project. First, the constructs were selected from a review of the literature and the domain of each defined. Second, the data were used to determine the uniqueness of the constructs through factor analysis with varimax rotation. Third, the data from the statistical procedures were used to determine the extent to which the items did measure the hypothesized constructs.

Readability

A sample analysis of the language used on the instrument was conducted to determine the grade level of readability. The results, which appear in Table 2, indicate that both the instructions and items were written at a

Insert Table 2 Here

college level.

PURPOSE OF THE STUDY

The purpose of the study was to assess the construct validity of an instrument to be used in subsequent studies in plotting and testing the impact of the leader style upon work groups.

POPULATION

The data used in the factor analysis were responses from 455 secondary teachers employed in 20 randomly selected Iowa high schools and 21 northern Missouri high schools. The data were collected by Harrington¹⁴ and Lawrence.¹⁵ The study included responses from 248 Iowa teachers and 207 Missouri teachers.

Table 2

Readability Level of the Organizational Climate Survey

Variable	Instructions	Items
Number of sentences	7.0	7.0
Number of words	132.0	97.0
Number of syllables	204.0	198.0
Words of 6 or more letters	42.0	43.0
3 or more syllable words	22.0	30.0
Percent of 3 or more syllable words	16.7	30.9
Average sentence length	18.9	13.9
Average letters per word	4.8	5.9
Average syllables per word	1.5	2.0
Corrected Dale-Chall grade level ^a	9-10	13-15
McLaughlin smog grade ^b	13.3	15.0
Fry grade level ^c	10.0	college
Gunning fog grade level ^d	14.2	17.9
Flesch grade level ^e	10.9	17.5

Notes

- a. Edgar Dale and Jeanne S. Chall, "A Formula for Predicting Readability," Educational Research Bulletin, 27, 1948, pp. 11-20, 37-54.
- b. H. McLaughlin, "SMOG Grading - A New Reading Formula." Journal of Reading, Vol. 12, No. 8 (May, 1969), pp. 639-646.
- c. E. Fry, "A Readability Formula that Saves Time." Journal of Reading, Vol. 11, No. 7 (April, 1968), pp. 513-516, 575-578.
- d. Robert Gunning, The Technique of Clear Writing. McGraw-Hill, 1952.
- e. Rudolf F. Flesch, "A New Readability Yardstick," Journal of Applied Psychology, Vol. 32, 1948, pp. 221-233.

METHODOLOGY

The data from the teachers were collected, factor analyzed, screened for best items, and re-factor analyzed with only the best items used. The purpose of the above procedure was to attain construct validity and factor scores on the various constructs. The data were then forced onto two factors and later, three factors, to achieve the desired "task" and "people" measures. Following this, the data from individual teachers were associated with their respective principals, and scores on the constructs (factors) and dimensions for each principal were derived. The achieved scores by the 41 principals on the various factors and dimensions were then standardized.

FINDINGS

Factor Analysis

A factor analysis (R technique) was conducted to test construct validity. Eleven factors with eigenvalues greater than 1.00 were found. The results of the factor analysis after varimax rotation appear in Table 3.

Insert Table 3 Here

Factor Screening

In an effort to assess each construct, a separate factor analysis was conducted on each scale. Self-Image and Leader Goal Orientation were found to have two factors within the scale with eigenvalues greater than 1.00.

The eight items on each construct were empirically analyzed for the degree of correlation of the item to the scale, for the loading of the item to the factor, and for the contribution of the variance of the item to the scale to determine the best or clearest measures. Forty-four items were selected

Table 3

Factor Analysis of All Eighty Items with Factors Rotated (VARIMAX)

												Communality	
Item	1	2	3	4	5	6	7	8	9	10	11		
SC	1	.14	.03	.14	.07	.47	.10	.10	.21	-.12	-.07	.55	.65
	2	.26	.22	.23	.17	.29	.24	-.07	.36	-.10	-.16	.07	.51
	3	.16	.08	.17	.14	.68	.15	-.13	.19	.01	.10	.02	.63
	4	.12	.16	.13	.17	.67	.18	-.13	.15	.04	.05	.03	.62
	5	.12	.05	.15	.07	.67	.07	.18	.19	-.10	-.01	.35	.71
	6	.14	.22	.00	.08	.62	.11	.26	-.06	.10	-.12	.07	.58
	7	.19	.28	.18	.09	.26	.02	.12	.09	.14	.03	.61	.63
	8	.13	.03	.14	.10	.73	.06	.15	.02	.08	-.04	.07	.62
SI	1	.45	.13	.24	.10	.08	.22	.17	.56	.13	-.06	.07	.71
	2	.46	.06	.21	.21	.13	.19	.27	.56	.09	-.09	.01	.75
	3	.27	.04	.13	.18	.35	.16	.32	.50	.07	.08	.03	.64
	4	.46	.08	.18	.03	.17	.17	.12	.40	.05	.14	-.01	.51
	5	.06	.03	.14	.20	.13	.07	.79	.10	-.05	.01	.08	.73
	6	.13	.07	.12	.14	.10	.07	.81	-.02	.04	-.09	.01	.73
	7	.20	.15	.16	.12	.14	.12	.67	.20	-.03	.12	.08	.65
	8	.11	.00	.19	.13	.57	.02	.32	-.22	.04	.08	-.13	.57
PF	1	.17	.03	.73	.07	.05	.09	-.06	.18	.06	-.13	.16	.66
	2	.20	-.01	.65	.14	.00	.07	.18	.14	-.05	-.21	.03	.58
	3	.19	.11	.77	.06	.04	.07	.05	.08	.08	-.00	.13	.69
	4	.35	-.03	.59	.11	.07	.11	.08	.02	.10	-.14	.07	.54
	5	.22	.12	.64	.10	.23	.12	.15	.09	.03	.07	.00	.59
	6	.22	.04	.74	.10	.20	-.01	.07	.01	.08	.07	-.10	.67
	7	.24	.10	.72	.08	.13	.08	.02	.02	-.01	.22	.04	.67
	8	.13	-.01	.57	.11	.28	-.08	.12	-.18	-.02	.31	.18	.62
LGO	1	.68	.05	.18	.16	.10	.05	.08	.06	.03	-.06	-.03	.56
	2	.72	.06	.25	.12	.06	.05	.02	.11	.30	-.09	.02	.72
	3	.33	.04	.11	.16	.13	.51	-.02	.35	.01	-.01	.03	.57
	4	.64	.09	.26	.07	.12	.10	.14	.15	-.01	.13	-.07	.57
	5	.25	.11	.12	.15	.08	.62	-.04	.28	-.06	.15	-.11	.62
	6	.65	.14	.24	.15	.07	.15	.07	.07	.18	.07	.09	.60
	7	.36	.12	.19	.16	.10	.47	.12	.04	.04	.17	.10	.50
	8	.73	.13	.18	.18	.15	.10	.10	-.01	.23	.12	-.02	.72
LDR	1	.62	.10	.33	.01	.03	.06	-.03	.15	.41	-.20	.00	.75
	2	.73	.10	.24	.10	.05	.12	-.01	.15	.36	-.08	-.01	.78
	3	.63	.17	.32	.10	.01	.13	.01	.11	.41	-.15	-.05	.76
	4	.73	.06	.21	.10	.09	.13	-.03	.11	.25	.01	.03	.69
	5	.67	.18	.23	.02	.11	.11	.02	.07	.41	-.03	.07	.73
	6	.58	.16	.41	.04	.05	.06	-.03	.01	.40	-.00	.08	.71
	7	.67	.09	.17	.16	.05	.18	.00	.09	.46	.13	.03	.77
	8	.59	.12	.23	.26	-.01	.17	-.01	.13	.44	.20	.08	.78
GGO	1	.18	.14	.03	.75	.09	.01	.08	.02	.07	-.19	.06	.67
	2	.24	.08	.07	.74	.04	.10	.14	.11	.03	-.15	.06	.69
	3	.29	.05	.06	.64	.19	.27	.03	.18	-.01	-.04	.03	.65
	4	.18	.07	.06	.78	.12	.15	.11	.05	-.06	-.01	.10	.72
	5	.21	.17	.17	.63	.10	.24	.06	.02	-.12	.05	-.05	.59
	6	.30	.17	.16	.57	.15	.13	.01	-.00	.24	.18	.01	.61
	7	.24	.16	.12	.71	.07	.17	.12	-.05	.04	.10	-.05	.66
	8	.24	.12	.13	.74	.10	.18	.07	.07	.06	.16	-.05	.72

Table 3 Continued

TD	1	.79	.08	.16	.16	.13	.04	.04	.07	.00	-.16	-.10	.75
	2	.76	.07	.07	.21	.08	.10	.06	.04	-.04	-.14	.02	.68
	3	.76	.05	.06	.15	.07	.20	.03	.08	.02	-.19	.07	.70
	4	.73	.11	.19	.21	.08	.20	.02	-.02	.13	.01	-.01	.69
	5	.72	.06	.06	.18	-.01	.28	.04	.07	-.08	-.01	.09	.65
	6	.73	.06	.11	.08	.13	.16	.09	-.02	-.27	.11	.04	.69
	7	.67	.11	.16	.20	.01	.24	.11	.04	.05	.11	.04	.61
	8	.78	.08	.05	.14	.17	.21	.04	-.02	-.17	.11	.07	.76
SUP	1	.77	.05	.05	.12	.08	.07	.06	.16	-.05	-.13	.02	.68
	2	.77	.08	.04	.12	.11	.17	.01	.14	-.04	-.10	-.00	.68
	3	.63	.12	.04	.14	-.03	.23	.03	.03	-.24	-.10	.19	.59
	4	.74	.05	.11	.10	.02	.26	.05	-.01	-.18	-.02	.08	.68
	5	.72	.06	.02	.11	.14	.22	.12	.05	-.12	.10	-.00	.61
	6	.81	.06	.04	.11	.09	.18	.06	.06	.03	.10	.10	.75
	7	.82	.09	.12	.10	.08	.15	.12	.02	.14	.09	-.02	.77
	8	.80	.10	.04	.10	.12	.20	.06	.01	-.06	.16	-.01	.75
SB	1	.09	.83	.06	.08	.01	.06	.03	.02	-.00	-.14	.10	.74
	2	.52	.18	.17	.09	.06	.17	.06	.30	.18	-.21	-.05	.54
	3	.19	.72	.08	.11	.08	.12	-.02	-.06	.07	-.21	-.09	.65
	4	.07	.75	.06	.11	.12	.11	.07	-.00	-.06	.04	.11	.64
	5	.12	.83	.05	.13	.04	.20	.06	.04	-.02	.01	.01	.78
	6	.10	.84	.02	.05	.08	.12	.05	.02	.12	.05	-.04	.75
	7	.25	.55	.10	.13	.19	.34	.04	.22	.04	.09	-.13	.62
	8	.09	.72	.01	.16	.02	.21	.06	.13	.05	.17	.13	.66
OA	1	.24	.08	-.14	.05	-.01	.51	.05	.06	-.03	-.24	-.00	.41
	2	.26	.07	.11	.19	.07	.63	.02	.09	-.01	-.23	.01	.58
	3	.21	.28	.17	.11	.23	.51	-.09	-.00	.02	-.22	-.24	.59
	4	.26	.24	.11	.14	.10	.62	.06	-.03	.07	.02	.00	.56
	5	.26	.12	.10	.15	.10	.69	.10	.07	.03	.10	.05	.62
	6	.24	.18	.01	.11	.11	.77	.10	.08	.06	.11	.07	.75
	7	.14	.24	.01	.16	.05	.75	.08	-.06	.07	-.05	.06	.69
	8	.24	.50	.05	.13	.11	.48	-.01	.02	.03	.14	.06	.60
Eigen-													
value		28.01	5.42	4.19	3.24	2.61	2.31	1.83	1.60	1.34	1.06	1.01	
Proportional													
Contribution		17.79	5.28	5.46	5.18	3.95	5.65	2.59	2.19	2.01	1.27	1.25	

as the most discriminating of the desired measures.

Re-factor Analysis

The data were re-factored with only the 44 variables. Table 4 contains

Insert Table 4 Here

the identity of the 44 variables and the resultant seven factors with eigenvalues greater than 1.00 after varimax rotation.

Forced Factoring

Since seven factors were found and only two (task and people) dimensions were desired for application to the model, the data were then forced onto two factors. The data became indistinguishable. The decision was then made to re-factor forcing the data onto the three dimensions--task, people, and interaction.

The data became much clearer; the results appear in Table 5. leader

Insert Table 5 Here

Goal Orientation (LGO), Leadership (LDR), Training and Development (TD), and Supervision (SUP) loaded heaviest on the first factor; Salary and Benefits (SB), Opportunity for Advancement (AO), and Group Goal Orientation (GGO) on the second; and Self-Concept (SC), Self-Image (SI), and Personal Freedom (PF) on the third factor.

Data Associated with Leaders

After the data were factor analyzed, factor scores were used to derive a set of scores for each teacher on the seven factors and three dimensions. The individual teacher scores were associated with their respective principals and individual principal mean scores on factors and dimensions were

Table 4

Factor Analysis On Only 44 Items With Factors Rotated (VARIMAX)

		Factors							
		1	2	3	4	5	6	7	Communality
SC	4	.14	.15	.18	.16	.68	-.16	.17	.62
	5	.12	.05	.16	.06	.77	.17	.06	.68
	6	.16	.23	.03	.07	.68	.19	.01	.57
	8	.17	.04	.17	.09	.74	.09	-.01	.64
SI	5	.07	.05	.13	.18	.18	.84	.07	.80
	6	.14	.10	.11	.13	.10	.84	.02	.78
PF	1	.20	.03	.74	.10	.08	-.09	.04	.62
	3	.20	.10	.79	.07	.04	.04	.04	.68
	5	.23	.11	.69	.08	.23	.20	.08	.64
	6	.23	.02	.75	.06	.18	.11	-.08	.67
	7	.26	.08	.69	.03	.12	.15	.09	.60
LGO	1	.71	.05	.17	.17	.06	.12	-.06	.58
	2	.78	.09	.28	.11	.01	.02	-.07	.71
	4	.65	.06	.25	.04	.12	.21	.05	.55
	6	.69	.17	.26	.10	.05	.11	.05	.61
	8	.76	.15	.22	.12	.10	.10	.02	.68
LDR	1	.70	.13	.39	.02	-.01	-.10	-.06	.68
	2	.79	.13	.29	.09	.02	-.05	.01	.74
	4	.76	.07	.26	.08	.09	-.06	.07	.68
	5	.73	.21	.30	-.01	.06	-.01	.01	.67
	6	.64	.18	.46	.00	-.01	-.04	-.07	.66
	7	.74	.12	.26	.09	-.00	-.00	.11	.65
	8	.74	.12	.26	.09	-.00	-.00	.11	.65
GGO	1	.20	.16	.05	.80	.09	.06	-.06	.72
	2	.27	.10	.08	.80	.06	.11	.05	.74
	4	.19	.08	.07	.80	.17	.09	.18	.75
	7	.25	.18	.13	.67	.07	.11	.16	.60
TD	1	.81	.06	.11	.17	.12	-.02	-.07	.72
	2	.77	.07	.02	.23	.10	.05	.06	.67
	3	.78	.07	.04	.16	.09	.03	.14	.67
	5	.72	.07	.02	.18	.04	.02	.28	.64
	8	.75	.06	.01	.12	.19	.08	.23	.67
SUP	1	.80	.04	.00	.12	.11	.09	-.04	.68
	2	.80	.08	-.01	.11	.15	.03	.10	.68
	6	.82	.06	.04	.09	.10	.03	.20	.74
	7	.84	.09	.14	.07	.06	.12	.12	.77
	8	.79	.08	.02	.08	.14	.05	.24	.72
SB	1	.09	.85	.05	.09	.03	.01	.02	.74
	3	.21	.74	.08	.11	.05	-.01	-.03	.61
	4	.06	.76	.07	.07	.15	.06	.10	.63
	5	.14	.85	.04	.11	.07	.06	.13	.78
	6	.13	.85	.05	-.00	.09	.02	.07	.76
	8	.10	.72	.07	.13	.07	.05	.20	.60
OA	6	.30	.23	.07	.11	.12	.07	.78	.78
	7	.20	.30	.05	.17	.08	.03	.76	.74
Eigenvalue		16.44	4.07	2.79	2.42	1.67	1.32	1.20	
Proportional Contribution		12.81	4.39	3.87	2.85	2.52	1.78	1.70	

Table 5

Factor Analysis On Only 44 Items Extracting Three Factors

		Factors			Communality
		1	2	3	
SC	4	.14	.30	.43	.29
	5	.09	.19	.55	.35
	6	.11	.34	.40	.29
	8	.13	.16	.52	.32
SI	5	.04	.18	.48	.26
	6	.10	.19	.42	.22
PF	1	.24	-.03	.62	.45
	3	.23	.02	.68	.52
	5	.24	.10	.73	.61
	6	.24	-.05	.74	.61
	7	.27	.04	.67	.52
LGO	1	.70	.09	.23	.55
	2	.78	.07	.25	.68
	4	.64	.09	.32	.52
	6	.69	.19	.28	.59
	8	.75	.18	.27	.67
LDR	1	.70	.06	.28	.57
	2	.80	.12	.24	.71
	4	.77	.10	.24	.66
	5	.72	.17	.27	.62
	6	.64	.09	.36	.55
	7	.75	.14	.22	.63
	8	.75	.14	.22	.63
GGO	1	.25	.37	.22	.25
	2	.33	.34	.24	.28
	4	.25	.37	.28	.28
	7	.31	.40	.26	.32
TD	1	.81	.10	.16	.69
	2	.77	.18	.11	.64
	3	.79	.17	.09	.66
	5	.74	.21	.06	.60
	8	.75	.20	.13	.62
SUP	1	.79	.10	.10	.64
	2	.79	.17	.08	.66
	6	.82	.17	.09	.71
	7	.83	.15	.18	.75
	8	.79	.20	.09	.67
SB	1	.06	.79	.06	.63
	3	.17	.68	.09	.50
	4	.02	.75	.14	.58
	5	.11	.84	.09	.72
	6	.08	.79	.07	.64
	8	.08	.74	.11	.57
OA	6	.35	.47	.12	.35
	7	.25	.54	.07	.35
Proportional Contribution		12.93	5.39	4.99	

derived. The mean scores on the factors and dimensions appear in Table 6.

Insert Table 6 Here

Illustrated on the Administrative Grid in Figure 3 are the leader styles

Insert Figure 3 Here

of the 41 principals as determined by the instrument. Only the task and people dimension scores were used in plotting the scores on the grid.

DISCUSSION

The instrument was found to be reliable, and the constructs were validated by using factor analysis technique. Seven factors were identified on the final analysis which included only the 44 best items; the seven factors were later forced onto three factors. The three resulting variables were termed "dimensions" to distinguish them from the seven factors; these terms will be used as outlined above for the balance of the paper.

Four of the original constructs, LGO, TD, LDR, and SUP, clustered on the first factor and on the first dimension. These constructs appear to form a better measure for leader "effectiveness" than originally conceived as outlined in Figure 2. The original conception of task orientation was that it was not dependent upon leader-member interaction. The clustering of LDR and SUP items along with LGO and TD suggest that cooperative action is associated with the first dimension. This verifies the Barnard theoretical premise on effectiveness.

Three of the original constructs, SB, AO, and GGO, clustered on the second dimension. The second dimension and its construct composition produced an unexpected finding. Originally, a third dimension was expected to produce a measure of interaction between the leader and subordinates. However,

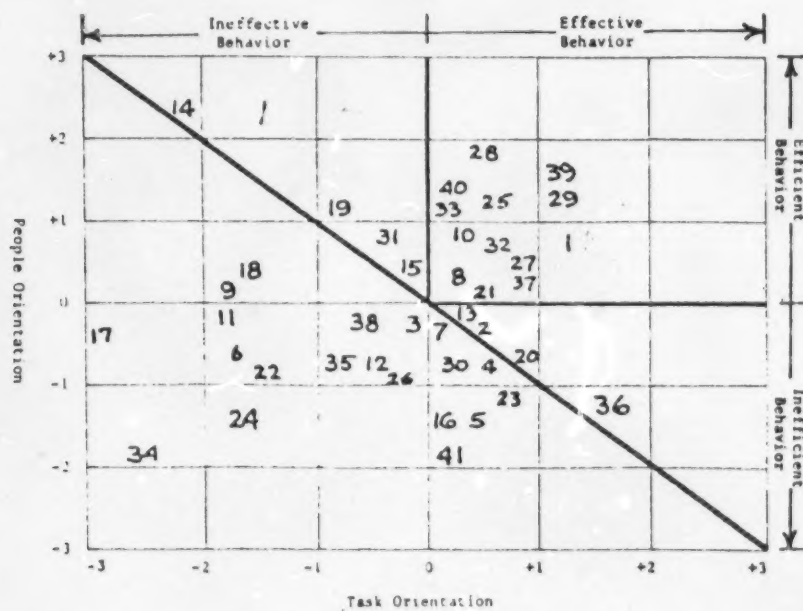
Table 6

Means and Standard Deviations on Factors and Dimensions for the 41
Secondary Principals

	Factors							Dimensions		
	LGO	SB	PF	GGO	SC	AO	SI	Task	SB	People
Mean	-.01	-.08	.07	-.01	.03	-.01	.02	.11	.00	.06
S.D.	.71	.69	.39	.34	.32	.39	.43	.70	.68	.38

Figure 3

Leader Styles of the 41 Principals



Administrative Grid

salaries and advancement opportunities were separated from the task and people measures. The hypothesis derived from this finding is that teachers may view principals as having little or no control over these factors. GGO did not load well on any one of the three dimensions, but loaded best on the second dimension. In addition, GGO did not correlate with factor two as well as SB and AO. Administration of the instrument in other work environments may clarify the second dimension and explain the nature of the loadings.

The third dimension was the only one in which the constructs, SC, SI, and PF, clustered on the dimension as expected. The dimension was designed to measure the construct of efficiency identified by Barnard.

Dimensions one and three were the only ones used in plotting leader scores on the Administrative Grid. These two dimensions appeared to be those best measuring the constructs originally conceived for the Grid.

IMPLICATIONS

A major problem associated with leader style studies is the adequacy of appropriate instruments. By nature, a questionnaire is the performance criteria when administered and is a useless substitute for reality unless sufficient documentation is provided that the criteria used in the instrument construction is predictive and measures what it purports to measure.

Questionnaire construction is a tedious and time consuming process. It is a particularly difficult process when the attempt is being made to create items measuring definite constructs which are associated with a specific theory. Unless this is done, however, the theory is never fully vindicated

or rejected, and the field has a tendency to either ignore the theory or run awry.

The contention made at the beginning of this paper was that two-factor theory as first proposed by Barnard has become maligned. Instead of developing into a comprehensive methodical body of research the field has become fragmented with bits of evidence here and there that does little to focus on the leader as a causal factor in organizations. Instead of macro-theorists building theoretical models which suggest that leaders are a controlling force in organizations, they have acquiesced to micro-theorists who contend that the "situation" is the controlling force. The obvious question, and the one that students of education administration need to grapple, is, "What caused the situation?"

The purpose of this study was to create and test an instrument capable of answering the question stated above. Since Barnard provided only general definitions to effectiveness and efficiency, the literature was reviewed to identify specific constructs associated with the definitions. The constructs were analyzed and verified through factor analysis, and the data suggest the instrument is ready for further studies.

In leader style studies, several key variables are involved. Among the variables are: 1) the assessment instrument; 2) the people responding to the instrument; 3) the leaders; 4) the interaction between leaders, subordinates, and superordinates; 5) the nature of the organizational task; and 6) the relationship of the organization to its external environment. Each of these, independently and collectively, must be accepted or rejected as factors contributing to organization achievement. Each must be scrutinized for con-

tribution to leader style.

The study focused only on the first variable mentioned above--the assessment instrument. The purpose was to create and validate an instrument necessary for further studies. The strengths and weaknesses of the instrument were determined and issues related to the development of the instrument requiring further study were pointed out.

The instrument is proposed as the key to further research, and until the instrument is subjected to rigorous analysis, additional research into the organizational variables mentioned above would be tenuous. Additional research may reveal that the situational and contingency theorists are correct, but judgment should be reserved until the Barnard premises are rejected through a methodical process. This study was the initial step.

NOTES

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